The evolution of Aquatic Organism Passage (AOP) in Vermont 2000 - 2007

Afterthought

Failure

Inadvertent

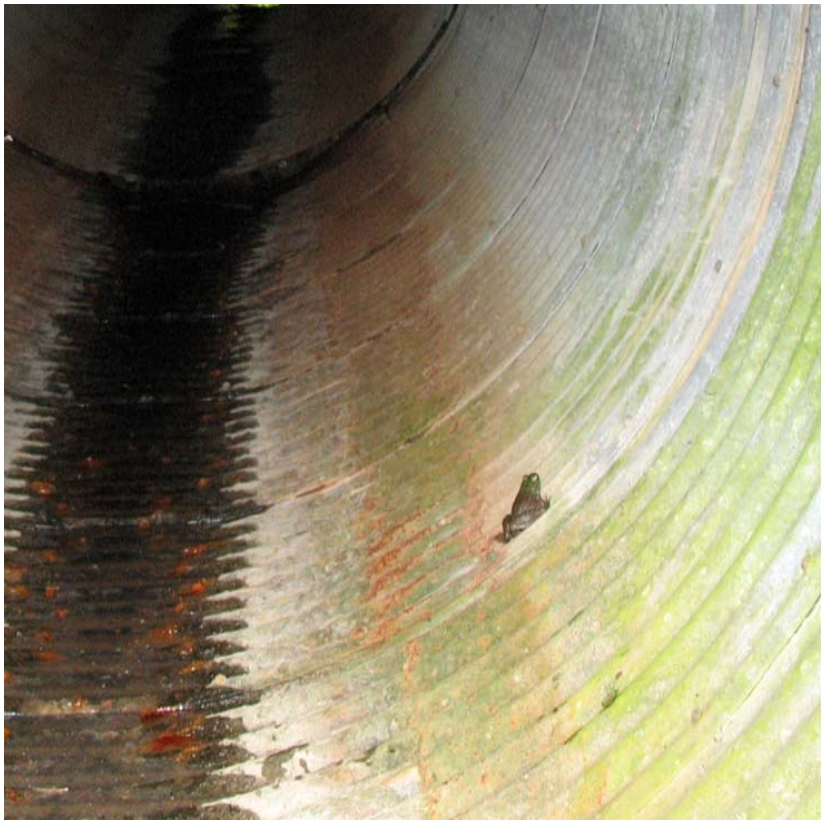
Box with Sills

Box without Sills

Open Bottom Arch

Bridge

Pre 2000



Afterthought…

- First designed in the early to mid 80’s, the VT9 Searsburg - Wilmington project was a 2.5+/- mile reconstruction project intended to iron out some serious wrinkles in the road.
- The project included 1 major and 3 minor bridge replacements, and relocation of 1200 ft of the Deerfield River.
- Shelved due to funding limitations, when re-evaluated in the latter 90’s, the relocation was deemed too controversial, so 2 additional major bridge crossings were added.

- As one final concession, one of the minor crossings, designed to be culverted was determined to require fish passage
- ….Ok whatever…

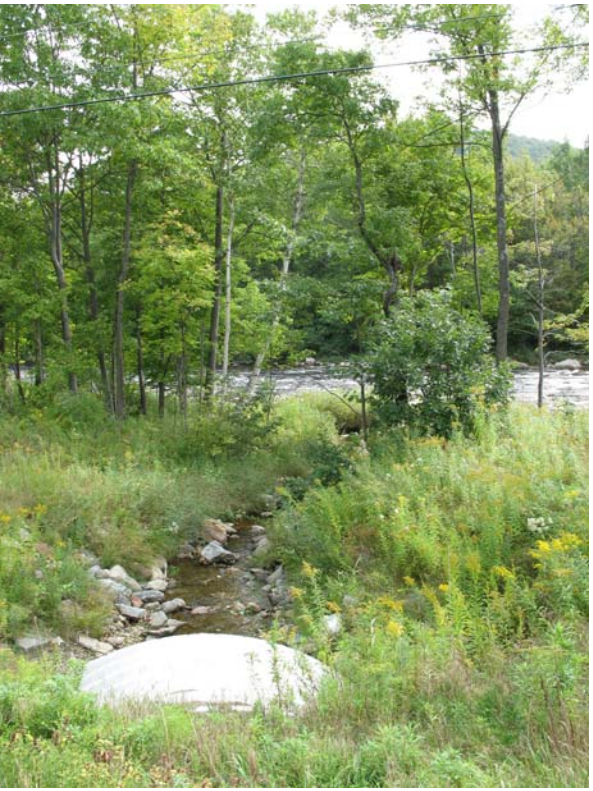
Wilmington VT 9 BR 26

November 01, 2000

- 10 ft x 5 ft RCB

Wilmington VT 9 BR 26

September 14, 2007



- Heather Brook 11ft 1 in x 7ft 0 in CAAPPA
- Installed September 2002

Wilmington VT 9 BR 26

- Note - 6 in concrete baffles

Aging Infrastructure

- In 2003, a committee was formed to begin to prioritize failing culverts for replacement.
- A listing of the top 10 was created and plans were begun to repair, line, or replace each of these most critical structures.
- Five of the ten would be replacements required to provide for the passage of fish and other aquatic organisms.

Whitingham VT 100 BR30

May 20, 2005

Whitingham VT 100 BR30

May 20, 2005

Whitingham VT 100 BR30

August 26, 2005

Whitingham VT 100 BR 30

September 14, 2007

- Constrained by a sewer pipe crossing near the inlet, small bed material, poor sill placement (8ft from outlet), and inadequate scour protection, AOP failed.

- Between May and August 2005, the next bridge crossing downstream, VT 100 BR29 opened holes in the road. With plans not advanced, the decision was made to place a Mabey Bridge over the structure until design could be completed and the structure replaced….

Whitingham VT 100 BR 29

Whitingham VT 100 BR 29

September 14, 2007

Whitingham VT 100 BR 29

September 14, 2007

- Inadvertent success?

Readsboro VT8 BR2

July 2, 2004

- 8ft 10in x 6ft 1in CMPPA
- Inlet
- Barrel from outlet looking upstream
- Downstream channel

Readsboro VT8 BR2

September 14, 2007

12 Ft x 8 Ft RCB with 2 ft V-notch Bed sills placed at inlet and outlet and on 8 ft centers

Readsboro VT8 BR2

September 14, 2007

- Downstream weir control

Jay VT 105 BR 50

April ’03 and August ‘06

Jay VT 105 BR 50

September 21, 2007

- 15 x 8 FT RCB – No Sills (replaces 10 ft 8 in x 6 ft 11 in CMPPA)

Buels Gore VT 117 BR 27

- 7 FT CGMP

Buels Gore VT 117 BR 27

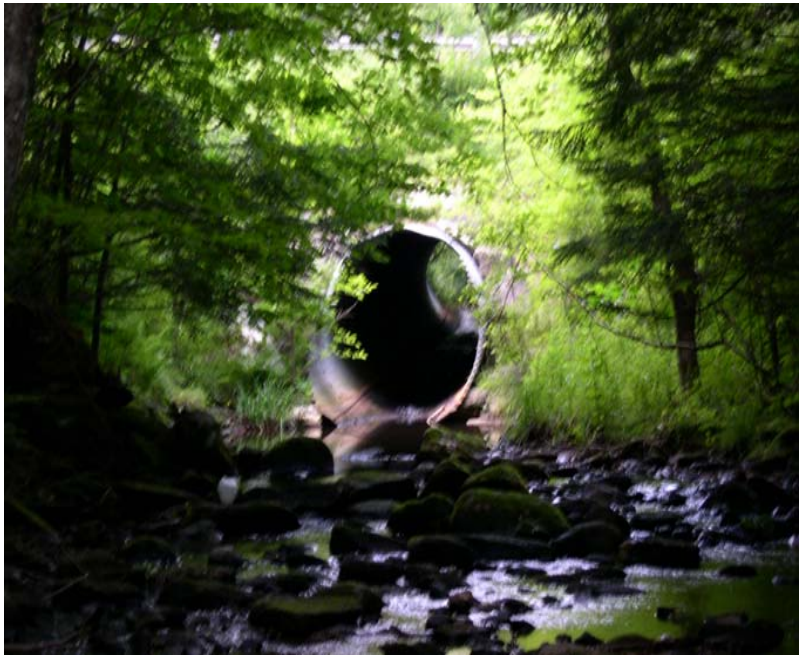
September, 22, 2007

- 16 FT PCC Arch on spread footings

Springfield VT 11 BR 55

Springfield VT11 BR55

July 2, 2004



- Inlet
- 11 ft diameter CMPP

Outlet

Springfield VT 11 BR 55

September 3, 2005

Springfield VT 11 BR 55

September 14, 2007

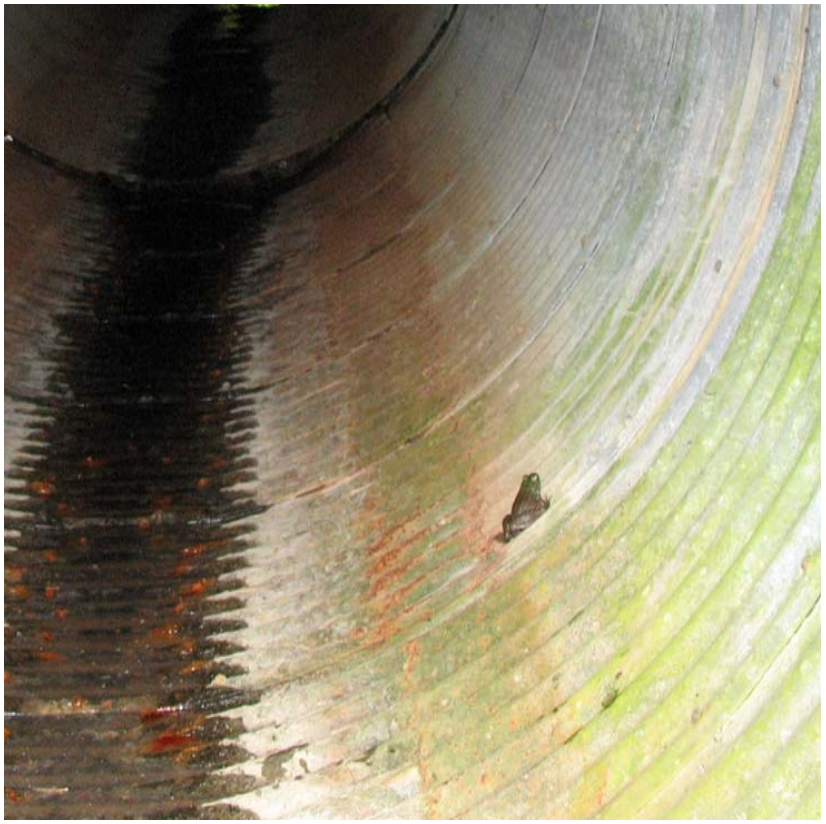
- Downstream Upstream

- 52 ft Precast Box Beam bridge on spread Footings

Springfield VT 11 BR 55

September 14, 2007

June 28, 2007

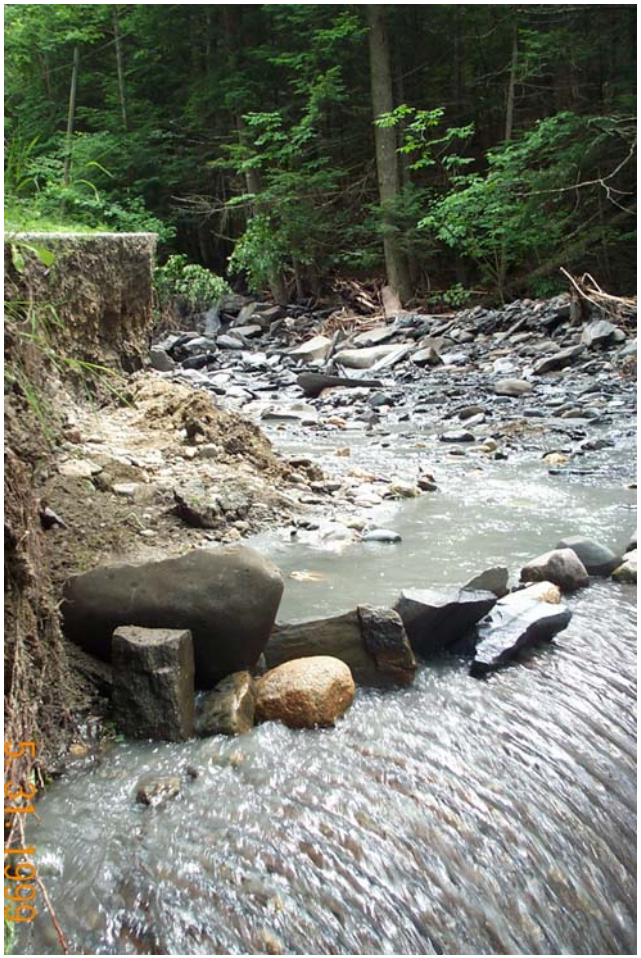


Other pressing issues….

Fluvial geomorphology and
Sediment Transport

Sediment Transport in Central Vermont

July 11, 2007




5. 31. 1999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5. 31. 1999


5. 31. 1999

- Next town north, same day, same ridge, different road